



1/28

# SEQUENCE LISTING

<110> Markowitz, Sanford D.

<120> METHODS AND COMPOSITIONS FOR  
CATEGORIZING PATIENTS

<130> CWRU-P03-003

<140> US 10/649,591

<141> 2003-08-26

<150> US 10/229,345

<151> 2002-08-26

<150> US 10/274,177

<151> 2002-10-18

<160> 22

<170> FastSEQ for Windows Version 4.0

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<211> 1331

<212> PRT

<213> Homo sapiens

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Arg	Thr	Arg	His	Ile	Leu	Ile	Asp	Asn	Gly	Gly	Glu	Leu	His	Ala	Gly
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Ser	Ala	Leu	Cys	Pro	Phe	Gln	Gly	Asn	Phe	Thr	Ile	Ile	Leu	Tyr	Gly
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Arg	Ala	Asp	Glu	Gly	Ile	Gln	Pro	Asp	Pro	Tyr	Tyr	Gly	Leu	Lys	Tyr
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Glu	Gly	Gly	Tyr	Phe	Phe	Glu	Arg	Ser	Trp	Gly	His	Arg	Gly	Val	Ile
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Val	His	Val	Ile	Asp	Pro	Lys	Ser	Gly	Thr	Val	Ile	His	Ser	Asp	Arg
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Phe	Asp	Thr	Tyr	Arg	Ser	Lys	Lys	Glu	Ser	Glu	Arg	Leu	Val	Gln	Tyr
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Leu	Asn	Ala	Val	Pro	Asp	Gly	Arg	Ile	Leu	Ser	Val	Ala	Val	Asn	Asp
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Glu	Gly	Ser	Arg	Asn	Leu	Asp	Asp	Met	Ala	Arg	Lys	Ala	Met	Thr	Lys
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Leu	Gly	Ser	Lys	His	Phe	Leu	His	Leu	Gly	Phe	Arg	His	Pro	Trp	Ser
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Phe	Leu	Thr	Val	Lys	Gly	Asn	Pro	Ser	Ser	Ser	Val	Glu	Asp	His	Ile
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Glu	Tyr	His	Gly	His	Arg	Gly	Ser	Ala	Ala	Ala	Arg	Val	Phe	Lys	Leu
			260					265					270		
Phe	Gln	Thr	Glu	His	Gly	Glu	Tyr	Phe	Asn	Val	Ser	Leu	Ser	Ser	Glu
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Trp	Val	Gln	Asp	Val	Glu	Trp	Thr	Glu	Trp	Phe	Asp	His	Asp	Lys	Val
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Ser	Gln	Thr	Lys	Gly	Gly	Glu	Lys	Ile	Ser	Asp	Leu	Trp	Lys	Ala	His
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Pro	Gly	Lys	Ile	Cys	Asn	Arg	Pro	Ile	Asp	Ile	Gln	Ala	Thr	Thr	Met
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Asp	Gly	Val	Asn	Leu	Ser	Thr	Glu	Val	Val	Tyr	Lys	Lys	Gly	Gln	Asp
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Tyr	Arg	Phe	Ala	Cys	Tyr	Asp	Arg	Gly	Arg	Ala	Cys	Arg	Ser	Tyr	Arg
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Ile	Asp	Thr	Asn	Val	Asn	Ser	Thr	Ile	Leu	Asn	Leu	Glu	Asp	Asn	Val
385					390					395					400
Gln	Ser	Trp	Lys	Pro	Gly	Asp	Thr	Leu	Val	Ile	Ala	Ser	Thr	Asp	Tyr
			405					410						415	
Ser	Met	Tyr	Gln	Ala	Glu	Glu	Phe	Gln	Val	Leu	Pro	Cys	Arg	Ser	Cys
			420					425					430		
Ala	Pro	Asn	Gln	Val	Lys	Val	Ala	Gly	Lys	Pro	Met	Tyr	Leu	His	Ile
		435					440					445			
Gly	Glu	Glu	Ile	Asp	Gly	Val	Asp	Met	Arg	Ala	Glu	Val	Gly	Leu	Leu
	450				455						460				
Ser	Arg	Asn	Ile	Ile	Val	Met	Gly	Glu	Met	Glu	Asp	Lys	Cys	Tyr	Pro
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Tyr	Arg	Asn	His	Ile	Cys	Asn	Phe	Phe	Asp	Phe	Asp	Thr	Phe	Gly	Gly
			485						490					495	
His	Ile	Lys	Phe	Ala	Leu	Gly	Phe	Lys	Ala	Ala	His	Leu	Glu	Gly	Thr
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Glu	Leu	Lys	His	Met	Gly	Gln	Gln	Leu	Val	Gly	Gln	Tyr	Pro	Ile	His
		515					520					525			
Phe	His	Leu	Ala	Gly	Asp	Val	Asp	Glu	Arg	Gly	Gly	Tyr	Asp	Pro	Pro
	530					535					540				
Thr	Tyr	Ile	Arg	Asp	Leu	Ser	Ile	His	His	Thr	Phe	Ser	Arg	Cys	Val
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Thr	Val	His	Gly	Ser	Asn	Gly	Leu	Leu	Ile	Lys	Asp	Val	Val	Gly	Tyr
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Asn	Ser	Leu	Gly	His	Cys	Phe	Phe	Thr	Glu	Asp	Gly	Pro	Glu	Glu	Arg
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Asn	Thr	Phe	Asp	His	Cys	Leu	Gly	Leu	Leu	Val	Lys	Ser	Gly	Thr	Leu
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Leu	Pro	Ser	Asp	Arg	Asp	Ser	Lys	Met	Cys	Lys	Met	Ile	Thr	Glu	Asp
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Ser	Tyr	Pro	Gly	Tyr	Ile	Pro	Lys	Pro	Arg	Gln	Asp	Cys	Asn	Ala	Val
625					630					635					640
Ser	Thr	Phe	Trp	Met	Ala	Asn	Pro	Asn	Asn	Asn	Leu	Ile	Asn	Cys	Ala
			645						650					655	
Ala	Ala	Gly	Ser	Glu	Glu	Thr	Gly	Phe	Trp	Phe	Ile	Phe	His	His	Val
			660					665					670		
Pro	Thr	Gly	Pro	Ser	Val	Gly	Met	Tyr	Ser	Pro	Gly	Tyr	Ser	Glu	His
		675					680					685			
Ile	Pro	Leu	Gly	Lys	Phe	Tyr	Asn	Asn	Arg	Ala	His	Ser	Asn	Tyr	Arg
	690					695					700				

Ala Gly Met Ile Ile Asp Asn Gly Val Lys Thr Thr Glu Ala Ser Ala	705	710	715	720
Lys Asp Lys Arg Pro Phe Leu Ser Ile Ile Ser Ala Arg Tyr Ser Pro	725	730	735	
His Gln Asp Ala Asp Pro Leu Lys Pro Arg Glu Pro Ala Ile Ile Arg	740	745	750	
His Phe Ile Ala Tyr Lys Asn Gln Asp His Gly Ala Trp Leu Arg Gly	755	760	765	
Gly Asp Val Trp Leu Asp Ser Cys Arg Phe Ala Asp Asn Gly Ile Gly	770	775	780	
Leu Thr Leu Ala Ser Gly Gly Thr Phe Pro Tyr Asp Asp Gly Ser Lys	785	790	795	800
Gln Glu Ile Lys Asn Ser Leu Phe Val Gly Glu Ser Gly Asn Val Gly	805	810	815	
Thr Glu Met Met Asp Asn Arg Ile Trp Gly Pro Gly Gly Leu Asp His	820	825	830	
Ser Gly Arg Thr Leu Pro Ile Gly Gln Asn Phe Pro Ile Arg Gly Ile	835	840	845	
Gln Leu Tyr Asp Gly Pro Ile Asn Ile Gln Asn Cys Thr Phe Arg Lys	850	855	860	
Phe Val Ala Leu Glu Gly Arg His Thr Ser Ala Leu Ala Phe Arg Leu	865	870	875	880
Asn Asn Ala Trp Gln Ser Cys Pro His Asn Asn Val Thr Gly Ile Ala	885	890	895	
Phe Glu Asp Val Pro Ile Thr Ser Arg Val Phe Phe Gly Glu Pro Gly	900	905	910	
Pro Trp Phe Asn Gln Leu Asp Met Asp Gly Asp Lys Thr Ser Val Phe	915	920	925	
His Asp Val Asp Gly Ser Val Ser Glu Tyr Pro Gly Ser Tyr Leu Thr	930	935	940	
Lys Asn Asp Asn Trp Leu Val Arg His Pro Asp Cys Ile Asn Val Pro	945	950	955	960
Asp Trp Arg Gly Ala Ile Cys Ser Gly Cys Tyr Ala Gln Met Tyr Ile	965	970	975	
Gln Ala Tyr Lys Thr Ser Asn Leu Arg Met Lys Ile Ile Lys Asn Asp	980	985	990	
Phe Pro Ser His Pro Leu Tyr Leu Glu Gly Ala Leu Thr Arg Ser Thr	995	1000	1005	
His Tyr Gln Gln Tyr Gln Pro Val Val Thr Leu Gln Lys Gly Tyr Thr	1010	1015	1020	
Ile His Trp Asp Gln Thr Ala Pro Ala Glu Leu Ala Ile Trp Leu Ile	1025	1030	1035	1040
Asn Phe Asn Lys Gly Asp Trp Ile Arg Val Gly Leu Cys Tyr Pro Arg	1045	1050	1055	
Gly Thr Thr Phe Ser Ile Leu Ser Asp Val His Asn Arg Leu Leu Lys	1060	1065	1070	
Gln Thr Ser Lys Thr Gly Val Phe Val Arg Thr Leu Gln Met Asp Lys	1075	1080	1085	
Val Glu Gln Ser Tyr Pro Gly Arg Ser His Tyr Tyr Trp Asp Glu Asp	1090	1095	1100	
Ser Gly Leu Leu Phe Leu Lys Leu Lys Ala Gln Asn Glu Arg Glu Lys	1105	1110	1115	1120
Phe Ala Phe Cys Ser Met Lys Gly Cys Glu Arg Ile Lys Ile Lys Ala	1125	1130	1135	
Leu Ile Pro Lys Asn Ala Gly Val Ser Asp Cys Thr Ala Thr Ala Tyr	1140	1145	1150	
Pro Lys Phe Thr Glu Arg Ala Val Val Asp Val Pro Met Pro Lys Lys	1155	1160	1165	

Leu Phe Gly Ser Gln Leu Lys Thr Lys Asp His Phe Leu Glu Val Lys  
 1170 1175 1180  
 Met Glu Ser Ser Lys Gln His Phe Phe His Leu Trp Asn Asp Phe Ala  
 1185 1190 1195 1200  
 Tyr Ile Glu Val Asp Gly Lys Lys Tyr Pro Ser Ser Glu Asp Gly Ile  
 1205 1210 1215  
 Gln Val Val Val Ile Asp Gly Asn Gln Gly Arg Val Val Ser His Thr  
 1220 1225 1230  
 Ser Phe Arg Asn Ser Ile Leu Gln Gly Ile Pro Trp Gln Leu Phe Asn  
 1235 1240 1245  
 Tyr Val Ala Thr Ile Pro Asp Asn Ser Ile Val Leu Met Ala Ser Lys  
 1250 1255 1260  
 Gly Arg Tyr Val Ser Arg Gly Pro Trp Thr Arg Val Leu Glu Lys Leu  
 1265 1270 1275 1280  
 Gly Ala Asp Arg Gly Leu Lys Leu Lys Glu Gln Met Ala Phe Val Gly  
 1285 1290 1295  
 Phe Lys Gly Ser Phe Arg Pro Ile Trp Val Thr Leu Asp Thr Glu Asp  
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 His Lys Ala Lys Ile Phe Gln Val Val Pro Ile Pro Val Val Lys Lys  
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 Lys Lys Leu  
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 <212> PRT  
 <213> Homo sapiens

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 Leu Thr Ser Ser Ala Thr Val Tyr Ser Ile His Ile Ser Glu Gly Gly  
 35 40 45  
 Lys Leu Val Ile Lys Asp His Asp Glu Pro Ile Val Leu Arg Thr Arg  
 50 55 60  
 His Ile Leu Ile Asp Asn Gly Gly Glu Leu His Ala Gly Ser Ala Leu  
 65 70 75 80  
 Cys Pro Phe Gln Gly Asn Phe Thr Ile Ile Leu Tyr Gly Arg Ala Asp  
 85 90 95  
 Glu Gly Ile Gln Pro Asp Pro Tyr Tyr Gly Leu Lys Tyr Ile Gly Val  
 100 105 110  
 Gly Lys Gly Gly Ala Leu Glu Leu His Gly Gln Lys Lys Leu Ser Trp  
 115 120 125  
 Thr Phe Leu Asn Lys Thr Leu His Pro Gly Gly Met Ala Glu Gly Gly  
 130 135 140  
 Tyr Phe Phe Glu Arg Ser Trp Gly His Arg Gly Val Ile Val His Val  
 145 150 155 160  
 Ile Asp Pro Lys Ser Gly Thr Val Ile His Ser Asp Arg Phe Asp Thr  
 165 170 175  
 Tyr Arg Ser Lys Lys Glu Ser Glu Arg Leu Val Gln Tyr Leu Asn Ala  
 180 185 190  
 Val Pro Asp Gly Arg Ile Leu Ser Val Ala Val Asn Asp Glu Gly Ser  
 195 200 205  
 Arg Asn Leu Asp Asp Met Ala Arg Lys Ala Met Thr Lys Leu Gly Ser  
 210 215 220

Lys	His	Phe	Leu	His	Leu	Gly	Phe	Arg	His	Pro	Trp	Ser	Phe	Leu	Thr	225	230	235	240
Val	Lys	Gly	Asn	Pro	Ser	Ser	Ser	Val	Glu	Asp	His	Ile	Glu	Tyr	His	245	250	255	
Gly	His	Arg	Gly	Ser	Ala	Ala	Ala	Arg	Val	Phe	Lys	Leu	Phe	Gln	Thr	260	265	270	
Glu	His	Gly	Glu	Tyr	Phe	Asn	Val	Ser	Leu	Ser	Ser	Glu	Trp	Val	Gln	275	280	285	
Asp	Val	Glu	Trp	Thr	Glu	Trp	Phe	Asp	His	Asp	Lys	Val	Ser	Gln	Thr	290	295	300	
Lys	Gly	Gly	Glu	Lys	Ile	Ser	Asp	Leu	Trp	Lys	Ala	His	Pro	Gly	Lys	305	310	315	320
Ile	Cys	Asn	Arg	Pro	Ile	Asp	Ile	Gln	Ala	Thr	Thr	Met	Asp	Gly	Val	325	330	335	
Asn	Leu	Ser	Thr	Glu	Val	Val	Tyr	Lys	Lys	Gly	Gln	Asp	Tyr	Arg	Phe	340	345	350	
Ala	Cys	Tyr	Asp	Arg	Gly	Arg	Ala	Cys	Arg	Ser	Tyr	Arg	Val	Arg	Phe	355	360	365	
Leu	Cys	Gly	Lys	Pro	Val	Arg	Pro	Lys	Leu	Thr	Val	Thr	Ile	Asp	Thr	370	375	380	
Asn	Val	Asn	Ser	Thr	Ile	Leu	Asn	Leu	Glu	Asp	Asn	Val	Gln	Ser	Trp	385	390	395	400
Lys	Pro	Gly	Asp	Thr	Leu	Val	Ile	Ala	Ser	Thr	Asp	Tyr	Ser	Met	Tyr	405	410	415	
Gln	Ala	Glu	Glu	Phe	Gln	Val	Leu	Pro	Cys	Arg	Ser	Cys	Ala	Pro	Asn	420	425	430	
Gln	Val	Lys	Val	Ala	Gly	Lys	Pro	Met	Tyr	Leu	His	Ile	Gly	Glu	Glu	435	440	445	
Ile	Asp	Gly	Val	Asp	Met	Arg	Ala	Glu	Val	Gly	Leu	Leu	Ser	Arg	Asn	450	455	460	
Ile	Ile	Val	Met	Gly	Glu	Met	Glu	Asp	Lys	Cys	Tyr	Pro	Tyr	Arg	Asn	465	470	475	480
His	Ile	Cys	Asn	Phe	Phe	Asp	Phe	Asp	Thr	Phe	Gly	Gly	His	Ile	Lys	485	490	495	
Phe	Ala	Leu	Gly	Phe	Lys	Ala	Ala	His	Leu	Glu	Gly	Thr	Glu	Leu	Lys	500	505	510	
His	Met	Gly	Gln	Gln	Leu	Val	Gly	Gln	Tyr	Pro	Ile	His	Phe	His	Leu	515	520	525	
Ala	Gly	Asp	Val	Asp	Glu	Arg	Gly	Gly	Tyr	Asp	Pro	Pro	Thr	Tyr	Ile	530	535	540	
Arg	Asp	Leu	Ser	Ile	His	His	Thr	Phe	Ser	Arg	Cys	Val	Thr	Val	His	545	550	555	560
Gly	Ser	Asn	Gly	Leu	Leu	Ile	Lys	Asp	Val	Val	Gly	Tyr	Asn	Ser	Leu	565	570	575	
Gly	His	Cys	Phe	Phe	Thr	Glu	Asp	Gly	Pro	Glu	Glu	Arg	Asn	Thr	Phe	580	585	590	
Asp	His	Cys	Leu	Gly	Leu	Leu	Val	Lys	Ser	Gly	Thr	Leu	Leu	Pro	Ser	595	600	605	
Asp	Arg	Asp	Ser	Lys	Met	Cys	Lys	Met	Ile	Thr	Glu	Asp	Ser	Tyr	Pro	610	615	620	
Gly	Tyr	Ile	Pro	Lys	Pro	Arg	Gln	Asp	Cys	Asn	Ala	Val	Ser	Thr	Phe	625	630	635	640
Trp	Met	Ala	Asn	Pro	Asn	Asn	Asn	Leu	Ile	Asn	Cys	Ala	Ala	Ala	Gly	645	650	655	
Ser	Glu	Glu	Thr	Gly	Phe	Trp	Phe	Ile	Phe	His	His	Val	Pro	Thr	Gly	660	665	670	
Pro	Ser	Val	Gly	Met	Tyr	Ser	Pro	Gly	Tyr	Ser	Glu	His	Ile	Pro	Leu	675	680	685	

Gly	Lys	Phe	Tyr	Asn	Asn	Arg	Ala	His	Ser	Asn	Tyr	Arg	Ala	Gly	Met
	690					695					700				
Ile	Ile	Asp	Asn	Gly	Val	Lys	Thr	Thr	Glu	Ala	Ser	Ala	Lys	Asp	Lys
705					710					715					720
Arg	Pro	Phe	Leu	Ser	Ile	Ile	Ser	Ala	Arg	Tyr	Ser	Pro	His	Gln	Asp
				725					730					735	
Ala	Asp	Pro	Leu	Lys	Pro	Arg	Glu	Pro	Ala	Ile	Ile	Arg	His	Phe	Ile
			740					745					750		
Ala	Tyr	Lys	Asn	Gln	Asp	His	Gly	Ala	Trp	Leu	Arg	Gly	Gly	Asp	Val
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Trp	Leu	Asp	Ser	Cys	Arg	Phe	Ala	Asp	Asn	Gly	Ile	Gly	Leu	Thr	Leu
770						775					780				
Ala	Ser	Gly	Gly	Thr	Phe	Pro	Tyr	Asp	Asp	Gly	Ser	Lys	Gln	Glu	Ile
785					790					795					800
Lys	Asn	Ser	Leu	Phe	Val	Gly	Glu	Ser	Gly	Asn	Val	Gly	Thr	Glu	Met
				805					810					815	
Met	Asp	Asn	Arg	Ile	Trp	Gly	Pro	Gly	Gly	Leu	Asp	His	Ser	Gly	Arg
			820					825				830			
Thr	Leu	Pro	Ile	Gly	Gln	Asn	Phe	Pro	Ile	Arg	Gly	Ile	Gln	Leu	Tyr
		835					840					845			
Asp	Gly	Pro	Ile	Asn	Ile	Gln	Asn	Cys	Thr	Phe	Arg	Lys	Phe	Val	Ala
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Leu	Glu	Gly	Arg	His	Thr	Ser	Ala	Leu	Ala	Phe	Arg	Leu	Asn	Asn	Ala
865					870					875					880
Trp	Gln	Ser	Cys	Pro	His	Asn	Asn	Val	Thr	Gly	Ile	Ala	Phe	Glu	Asp
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Val	Pro	Ile	Thr	Ser	Arg	Val	Phe	Phe	Gly	Glu	Pro	Gly	Pro	Trp	Phe
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Asn	Gln	Leu	Asp	Met	Asp	Gly	Asp	Lys	Thr	Ser	Val	Phe	His	Asp	Val
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Asp	Gly	Ser	Val	Ser	Glu	Tyr	Pro	Gly	Ser	Tyr	Leu	Thr	Lys	Asn	Asp
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Asn	Trp	Leu	Val	Arg	His	Pro	Asp	Cys	Ile	Asn	Val	Pro	Asp	Trp	Arg
945					950					955					960
Gly	Ala	Ile	Cys	Ser	Gly	Cys	Tyr	Ala	Gln	Met	Tyr	Ile	Gln	Ala	Tyr
				965					970					975	
Lys	Thr	Ser	Asn	Leu	Arg	Met	Lys	Ile	Lys	Asn	Asp	Phe	Pro	Ser	
			980					985				990			
His	Pro	Leu	Tyr	Leu	Glu	Gly	Ala	Leu	Thr	Arg	Ser	Thr	His	Tyr	Gln
		995					1000					1005			
Gln	Tyr	Gln	Pro	Val	Val	Thr	Leu	Gln	Lys	Gly	Tyr	Thr	Ile	His	Trp
	1010					1015					1020				
Asp	Gln	Thr	Ala	Pro	Ala	Glu	Leu	Ala	Ile	Trp	Leu	Ile	Asn	Phe	Asn
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Lys	Gly	Asp	Trp	Ile	Arg	Val	Gly	Leu	Cys	Tyr	Pro	Arg	Gly	Thr	Thr
				1045					1050					1055	
Phe	Ser	Ile	Leu	Ser	Asp	Val	His	Asn	Arg	Leu	Leu	Lys	Gln	Thr	Ser
			1060					1065					1070		
Lys	Thr	Gly	Val	Phe	Val	Arg	Thr	Leu	Gln	Met	Asp	Lys	Val	Glu	Gln
		1075					1080					1085			
Ser	Tyr	Pro	Gly	Arg	Ser	His	Tyr	Tyr	Trp	Asp	Glu	Asp	Ser	Gly	Leu
	1090					1095					1100				
Leu	Phe	Leu	Lys	Leu	Lys	Ala	Gln	Asn	Glu	Arg	Glu	Lys	Phe	Ala	Phe
1105					1110					1115					1120
Cys	Ser	Met	Lys	Gly	Cys	Glu	Arg	Ile	Lys	Ile	Lys	Ala	Leu	Ile	Pro
				1125					1130					1135	
Lys	Asn	Ala	Gly	Val	Ser	Asp	Cys	Thr	Ala	Thr	Ala	Tyr	Pro	Lys	Phe
			1140					1145					1150		

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Thr Glu Arg Ala Val Val Asp Val Pro Met Pro Lys Lys Leu Phe Gly
    1155                1160                1165
Ser Gln Leu Lys Thr Lys Asp His Phe Leu Glu Val Lys Met Glu Ser
    1170                1175                1180
Ser Lys Gln His Phe Phe His Leu Trp Asn Asp Phe Ala Tyr Ile Glu
    1185                1190                1195                1200
Val Asp Gly Lys Lys Tyr Pro Ser Ser Glu Asp Gly Ile Gln Val Val
    1205                1210                1215
Val Ile Asp Gly Asn Gln Gly Arg Val Val Ser His Thr Ser Phe Arg
    1220                1225                1230
Asn Ser Ile Leu Gln Gly Ile Pro Trp Gln Leu Phe Asn Tyr Val Ala
    1235                1240                1245
Thr Ile Pro Asp Asn Ser Ile Val Leu Met Ala Ser Lys Gly Arg Tyr
    1250                1255                1260
Val Ser Arg Gly Pro Trp Thr Arg Val Leu Glu Lys Leu Gly Ala Asp
    1265                1270                1275                1280
Arg Gly Leu Lys Leu Lys Glu Gln Met Ala Phe Val Gly Phe Lys Gly
    1285                1290                1295
Ser Phe Arg Pro Ile Trp Val Thr Leu Asp Thr Glu Asp His Lys Ala
    1300                1305                1310
Lys Ile Phe Gln Val Val Pro Ile Pro Val Val Lys Lys Lys Leu
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<212> PRT
<213> Homo sapiens

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Ala Ser Lys Met Met Trp Cys Ser Ala Ala Val Asp Ile Met Phe Leu
    20          25          30
Leu Asp Gly Ser Asn Ser Val Gly Lys Gly Ser Phe Glu Arg Ser Lys
    35          40          45
His Phe Ala Ile Thr Val Cys Asp Gly Leu Asp Ile Ser Pro Glu Arg
    50          55          60
Val Arg Val Gly Ala Phe Gln Phe Ser Ser Thr Pro His Leu Glu Phe
    65          70          75          80
Pro Leu Asp Ser Phe Ser Thr Gln Gln Glu Val Lys Ala Arg Ile Lys
    85          90          95
Arg Met Val Phe Lys Gly Gly Arg Thr Glu Thr Glu Leu Ala Leu Lys
    100         105         110
Tyr Leu Leu His Arg Gly Leu Pro Gly Gly Arg Asn Ala Ser Val Pro
    115         120         125
Gln Ile Leu Ile Ile Val Thr Asp Gly Lys Ser Gln Gly Asp Val Ala
    130         135         140
Leu Pro Ser Lys Gln Leu Lys Glu Arg Gly Val Thr Val Phe Ala Val
    145         150         155         160
Gly Val Arg Phe Pro Arg Trp Glu Glu Leu His Ala Leu Ala Ser Glu
    165         170         175
Pro Arg Gly Gln His Val Leu Leu Ala Glu Gln Val Glu Asp Ala Thr
    180         185         190
Asn Gly Leu Phe Ser Thr Leu Ser Ser Ser Ala Ile Cys Ser Ser Ala
    195         200         205
Thr Pro Asp Cys Arg Val Glu Ala His Pro Cys Glu His Arg Thr Leu
    210         215         220

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Glu	Met	Val	Arg	Glu	Phe	Ala	Gly	Asn	Ala	Pro	Cys	Trp	Arg	Gly	Ser	225	230	235	240
Arg	Arg	Thr	Leu	Ala	Val	Leu	Ala	Ala	His	Cys	Pro	Phe	Tyr	Ser	Trp	245	250	255	
Lys	Arg	Val	Phe	Leu	Thr	His	Pro	Ala	Thr	Cys	Tyr	Arg	Thr	Thr	Cys	260	265	270	
Pro	Gly	Pro	Cys	Asp	Ser	Gln	Pro	Cys	Gln	Asn	Gly	Gly	Thr	Cys	Val	275	280	285	
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&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 7

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&lt;210&gt; 8

&lt;211&gt; 2603

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 8

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&lt;210&gt; 9

&lt;211&gt; 1209

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc\_feature

&lt;222&gt; 1161

&lt;223&gt; n = A,T,C or G

&lt;400&gt; 9

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<212> DNA
<213> Homo sapiens

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<210> 11
<211> 411
<212> DNA
<213> Homo sapiens

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&lt;210&gt; 12

&lt;211&gt; 2336

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 12

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&lt;210&gt; 13

&lt;211&gt; 1361

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 13

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Ile	Arg	Asp	Leu	Ser	Ile	His	His	Thr	Phe	Ser	Arg	Cys	Val	Thr	Val
			580					585					590		
His	Gly	Ser	Asn	Gly	Leu	Leu	Ile	Lys	Asp	Val	Val	Gly	Tyr	Asn	Ser
		595					600					605			
Leu	Gly	His	Cys	Phe	Phe	Thr	Glu	Asp	Gly	Pro	Glu	Glu	Arg	Asn	Thr
	610					615					620				
Phe	Asp	His	Cys	Leu	Gly	Leu	Leu	Val	Lys	Ser	Gly	Thr	Leu	Leu	Pro
625					630					635					640
Ser	Asp	Arg	Asp	Ser	Lys	Met	Cys	Lys	Met	Ile	Thr	Glu	Asp	Ser	Tyr
			645						650						655
Pro	Gly	Tyr	Ile	Pro	Lys	Pro	Arg	Gln	Asp	Cys	Asn	Ala	Val	Ser	Thr
			660					665					670		
Phe	Trp	Met	Ala	Asn	Pro	Asn	Asn	Asn	Leu	Ile	Asn	Cys	Ala	Ala	Ala
		675					680					685			
Gly	Ser	Glu	Glu	Thr	Gly	Phe	Trp	Phe	Ile	Phe	His	His	Val	Pro	Thr
	690					695					700				
Gly	Pro	Ser	Val	Gly	Met	Tyr	Ser	Pro	Gly	Tyr	Ser	Glu	His	Ile	Pro
705					710					715					720
Leu	Gly	Lys	Phe	Tyr	Asn	Asn	Arg	Ala	His	Ser	Asn	Tyr	Arg	Ala	Gly
			725						730					735	
Met	Ile	Ile	Asp	Asn	Gly	Val	Lys	Thr	Thr	Glu	Ala	Ser	Ala	Lys	Asp
			740					745					750		
Lys	Arg	Pro	Phe	Leu	Ser	Ile	Ile	Ser	Ala	Arg	Tyr	Ser	Pro	His	Gln
		755					760					765			
Asp	Ala	Asp	Pro	Leu	Lys	Pro	Arg	Glu	Pro	Ala	Ile	Ile	Arg	His	Phe
	770					775					780				
Ile	Ala	Tyr	Lys	Asn	Gln	Asp	His	Gly	Ala	Trp	Leu	Arg	Gly	Gly	Asp
785					790					795					800
Val	Trp	Leu	Asp	Ser	Cys	Arg	Phe	Ala	Asp	Asn	Gly	Ile	Gly	Leu	Thr
			805						810					815	
Leu	Ala	Ser	Gly	Gly	Thr	Phe	Pro	Tyr	Asp	Asp	Gly	Ser	Lys	Gln	Glu
			820					825					830		
Ile	Lys	Asn	Ser	Leu	Phe	Val	Gly	Glu	Ser	Gly	Asn	Val	Gly	Thr	Glu
		835					840					845			
Met	Met	Asp	Asn	Arg	Ile	Trp	Gly	Pro	Gly	Gly	Leu	Asp	His	Ser	Gly
	850					855					860				
Arg	Thr	Leu	Pro	Ile	Gly	Gln	Asn	Phe	Pro	Ile	Arg	Gly	Ile	Gln	Leu
865					870					875					880
Tyr	Asp	Gly	Pro	Ile	Asn	Ile	Gln	Asn	Cys	Thr	Phe	Arg	Lys	Phe	Val
			885						890					895	
Ala	Leu	Glu	Gly	Arg	His	Thr	Ser	Ala	Leu	Ala	Phe	Arg	Leu	Asn	Asn
			900					905					910		
Ala	Trp	Gln	Ser	Cys	Pro	His	Asn	Asn	Val	Thr	Gly	Ile	Ala	Phe	Glu
		915					920					925			

Asp Val Pro Ile Thr Ser Arg Val Phe Phe Gly Glu Pro Gly Pro Trp  
 930 935 940  
 Phe Asn Gln Leu Asp Met Asp Gly Asp Lys Thr Ser Val Phe His Asp  
 945 950 955 960  
 Val Asp Gly Ser Val Ser Glu Tyr Pro Gly Ser Tyr Leu Thr Lys Asn  
 965 970 975  
 Asp Asn Trp Leu Val Arg His Pro Asp Cys Ile Asn Val Pro Asp Trp  
 980 985 990  
 Arg Gly Ala Ile Cys Ser Gly Cys Tyr Ala Gln Met Tyr Ile Gln Ala  
 995 1000 1005  
 Tyr Lys Thr Ser Asn Leu Arg Met Lys Ile Ile Lys Asn Asp Phe Pro  
 1010 1015 1020  
 Ser His Pro Leu Tyr Leu Glu Gly Ala Leu Thr Arg Ser Thr His Tyr  
 1025 1030 1035 1040  
 Gln Gln Tyr Gln Pro Val Val Thr Leu Gln Lys Gly Tyr Thr Ile His  
 1045 1050 1055  
 Trp Asp Gln Thr Ala Pro Ala Glu Leu Ala Ile Trp Leu Ile Asn Phe  
 1060 1065 1070  
 Asn Lys Gly Asp Trp Ile Arg Val Gly Leu Cys Tyr Pro Arg Gly Thr  
 1075 1080 1085  
 Thr Phe Ser Ile Leu Ser Asp Val His Asn Arg Leu Leu Lys Gln Thr  
 1090 1095 1100  
 Ser Lys Thr Gly Val Phe Val Arg Thr Leu Gln Met Asp Lys Val Glu  
 1105 1110 1115 1120  
 Gln Ser Tyr Pro Gly Arg Ser His Tyr Tyr Trp Asp Glu Asp Ser Gly  
 1125 1130 1135  
 Leu Leu Phe Leu Lys Leu Lys Ala Gln Asn Glu Arg Glu Lys Phe Ala  
 1140 1145 1150  
 Phe Cys Ser Met Lys Gly Cys Glu Arg Ile Lys Ile Lys Ala Leu Ile  
 1155 1160 1165  
 Pro Lys Asn Ala Gly Val Ser Asp Cys Thr Ala Thr Ala Tyr Pro Lys  
 1170 1175 1180  
 Phe Thr Glu Arg Ala Val Val Asp Val Pro Met Pro Lys Lys Leu Phe  
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 Gly Ser Gln Leu Lys Thr Lys Asp His Phe Leu Glu Val Lys Met Glu  
 1205 1210 1215  
 Ser Ser Lys Gln His Phe Phe His Leu Trp Asn Asp Phe Ala Tyr Ile  
 1220 1225 1230  
 Glu Val Asp Gly Lys Lys Tyr Pro Ser Ser Glu Asp Gly Ile Gln Val  
 1235 1240 1245  
 Val Val Ile Asp Gly Asn Gln Gly Arg Val Val Ser His Thr Ser Phe  
 1250 1255 1260  
 Arg Asn Ser Ile Leu Gln Gly Ile Pro Trp Gln Leu Phe Asn Tyr Val  
 1265 1270 1275 1280  
 Ala Thr Ile Pro Asp Asn Ser Ile Val Leu Met Ala Ser Lys Gly Arg  
 1285 1290 1295  
 Tyr Val Ser Arg Gly Pro Trp Thr Arg Val Leu Glu Lys Leu Gly Ala  
 1300 1305 1310  
 Asp Arg Gly Leu Lys Leu Lys Glu Gln Met Ala Phe Val Gly Phe Lys  
 1315 1320 1325  
 Gly Ser Phe Arg Pro Ile Trp Val Thr Leu Asp Thr Glu Asp His Lys  
 1330 1335 1340  
 Ala Lys Ile Phe Gln Val Val Pro Ile Pro Val Val Lys Lys Lys Lys  
 1345 1350 1355 1360  
 Leu

<211> 755  
 <212> PRT  
 <213> Homo sapiens

<400> 14

Met	Pro	Pro	Phe	Leu	Leu	Leu	Glu	Ala	Val	Cys	Val	Phe	Leu	Phe	Ser
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Arg	Val	Pro	Pro	Ser	Leu	Pro	Leu	Gln	Glu	Val	His	Val	Ser	Lys	Glu
			20					25					30		
Thr	Ile	Gly	Lys	Ile	Ser	Ala	Ala	Ser	Lys	Met	Met	Trp	Cys	Ser	Ala
		35					40					45			
Ala	Val	Asp	Ile	Met	Phe	Leu	Leu	Asp	Gly	Ser	Asn	Ser	Val	Gly	Lys
	50					55					60				
Gly	Ser	Phe	Glu	Arg	Ser	Lys	His	Phe	Ala	Ile	Thr	Val	Cys	Asp	Gly
65					70					75					80
Leu	Asp	Ile	Ser	Pro	Glu	Arg	Val	Arg	Val	Gly	Ala	Phe	Gln	Phe	Ser
				85					90					95	
Ser	Thr	Pro	His	Leu	Glu	Phe	Pro	Leu	Asp	Ser	Phe	Ser	Thr	Gln	Gln
			100					105					110		
Glu	Val	Lys	Ala	Arg	Ile	Lys	Arg	Met	Val	Phe	Lys	Gly	Gly	Arg	Thr
		115					120						125		
Glu	Thr	Glu	Leu	Ala	Leu	Lys	Tyr	Leu	Leu	His	Arg	Gly	Leu	Pro	Gly
		130				135						140			
Gly	Arg	Asn	Ala	Ser	Val	Pro	Gln	Ile	Leu	Ile	Ile	Val	Thr	Asp	Gly
145					150					155					160
Lys	Ser	Gln	Gly	Asp	Val	Ala	Leu	Pro	Ser	Lys	Gln	Leu	Lys	Glu	Arg
				165					170					175	
Gly	Val	Thr	Val	Phe	Ala	Val	Gly	Val	Arg	Phe	Pro	Arg	Trp	Glu	Glu
			180					185					190		
Leu	His	Ala	Leu	Ala	Ser	Glu	Pro	Arg	Gly	Gln	His	Val	Leu	Leu	Ala
		195					200					205			
Glu	Gln	Val	Glu	Asp	Ala	Thr	Asn	Gly	Leu	Phe	Ser	Thr	Leu	Ser	Ser
		210				215						220			
Ser	Ala	Ile	Cys	Ser	Ser	Ala	Thr	Pro	Asp	Cys	Arg	Val	Glu	Ala	His
225					230					235					240
Pro	Cys	Glu	His	Arg	Thr	Leu	Glu	Met	Val	Arg	Glu	Phe	Ala	Gly	Asn
				245					250					255	
Ala	Pro	Cys	Trp	Arg	Gly	Ser	Arg	Arg	Thr	Leu	Ala	Val	Leu	Ala	Ala
			260					265					270		
His	Cys	Pro	Phe	Tyr	Ser	Trp	Lys	Arg	Val	Phe	Leu	Thr	His	Pro	Ala
		275					280					285			
Thr	Cys	Tyr	Arg	Thr	Thr	Cys	Pro	Gly	Pro	Cys	Asp	Ser	Gln	Pro	Cys
		290				295					300				
Gln	Asn	Gly	Gly	Thr	Cys	Val	Pro	Glu	Gly	Leu	Asp	Gly	Tyr	Gln	Cys
305					310					315					320
Leu	Cys	Pro	Leu	Ala	Phe	Gly	Gly	Glu	Ala	Asn	Cys	Ala	Leu	Lys	Leu
				325					330					335	
Ser	Leu	Glu	Cys	Arg	Val	Asp	Leu	Leu	Phe	Leu	Leu	Asp	Ser	Ser	Ala
			340				345						350		
Gly	Thr	Thr	Leu	Asp	Gly	Phe	Leu	Arg	Ala	Lys	Val	Phe	Val	Lys	Arg
		355					360					365			
Phe	Val	Arg	Ala	Val	Leu	Ser	Glu	Asp	Ser	Arg	Ala	Arg	Val	Gly	Val
		370				375					380				
Ala	Thr	Tyr	Ser	Arg	Glu	Leu	Leu	Val	Ala	Val	Pro	Val	Gly	Glu	Tyr
385					390					395					400
Gln	Asp	Val	Pro	Asp	Leu	Val	Trp	Ser	Leu	Asp	Gly	Ile	Pro	Phe	Arg
				405					410					415	
Gly	Gly	Pro	Thr	Leu	Thr	Gly	Ser	Ala	Leu	Arg	Gln	Ala	Ala	Glu	Arg
			420					425					430		

[illegible]

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<210> 15
<211> 300
<212> PRT
<213> Homo sapiens
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<400> 15
Met Arg Ile Ala Val Ile Cys Phe Cys Leu Leu Gly Ile Thr Cys Ala
 1                    5                    10                    15
Ile Pro Val Lys Gln Ala Asp Ser Gly Ser Ser Glu Glu Lys Gln Leu
                20                25                30
Tyr Asn Lys Tyr Pro Asp Ala Val Ala Thr Trp Leu Asn Pro Asp Pro
      35              40              45
Ser Gln Lys Gln Asn Leu Leu Ala Pro Gln Thr Leu Pro Ser Lys Ser
    50          55          60

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Asn Glu Ser His Asp His Met Asp Asp Met Asp Asp Glu Asp Asp Asp
65          70          75          80
Asp His Val Asp Ser Gln Asp Ser Ile Asp Ser Asn Asp Ser Asp Asp
85          90          95
Val Asp Asp Thr Asp Asp Ser His Gln Ser Asp Glu Ser His His Ser
100         105         110
Asp Glu Ser Asp Glu Leu Val Thr Asp Phe Pro Thr Asp Leu Pro Ala
115         120         125
Thr Glu Val Phe Thr Pro Val Val Pro Thr Val Asp Thr Tyr Asp Gly
130         135         140
Arg Gly Asp Ser Val Val Tyr Gly Leu Arg Ser Lys Ser Lys Lys Phe
145         150         155
Arg Arg Pro Asp Ile Gln Tyr Pro Asp Ala Thr Asp Glu Asp Ile Thr
165         170         175
Ser His Met Glu Ser Glu Glu Leu Asn Gly Ala Tyr Lys Ala Ile Pro
180         185         190
Val Ala Gln Asp Leu Asn Ala Pro Ser Asp Trp Asp Ser Arg Gly Lys
195         200         205
Asp Ser Tyr Glu Thr Ser Gln Leu Asp Asp Gln Ser Ala Glu Thr His
210         215         220
Ser His Lys Gln Ser Arg Leu Tyr Lys Arg Lys Ala Asn Asp Glu Ser
225         230         235
Asn Glu His Ser Asp Val Ile Asp Ser Gln Glu Leu Ser Lys Val Ser
245         250         255
Arg Glu Phe His Ser His Glu Phe His Ser His Glu Asp Met Leu Val
260         265         270
Val Asp Pro Lys Ser Lys Glu Glu Asp Lys His Leu Lys Phe Arg Ile
275         280         285
Ser His Glu Leu Asp Ser Ala Ser Ser Glu Val Asn
290         295         300

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<210> 16
<211> 829
<212> PRT
<213> Homo sapiens

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<400> 16
Met Gly Leu Pro Arg Gly Pro Leu Ala Ser Leu Leu Leu Leu Gln Val
1          5          10          15
Cys Trp Leu Gln Cys Ala Ala Ser Glu Pro Cys Arg Ala Val Phe Arg
20         25         30
Glu Ala Glu Val Thr Leu Glu Ala Gly Gly Ala Glu Gln Glu Pro Gly
35         40         45
Gln Ala Leu Gly Lys Val Phe Met Gly Cys Pro Gly Gln Glu Pro Ala
50         55         60
Leu Phe Ser Thr Asp Asn Asp Asp Phe Thr Val Arg Asn Gly Glu Thr
65         70         75         80
Val Gln Glu Arg Arg Ser Leu Lys Glu Arg Asn Pro Leu Lys Ile Phe
85         90         95
Pro Ser Lys Arg Ile Leu Arg Arg His Lys Arg Asp Trp Val Val Ala
100        105        110
Pro Ile Ser Val Pro Glu Asn Gly Lys Gly Pro Phe Pro Gln Arg Leu
115        120        125
Asn Gln Leu Lys Ser Asn Lys Asp Arg Asp Thr Lys Ile Phe Tyr Ser
130        135        140
Ile Thr Gly Pro Gly Ala Asp Ser Pro Pro Glu Gly Val Phe Ala Val
145        150        155        160

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Glu	Lys	Glu	Thr	Gly	Trp	Leu	Leu	Leu	Asn	Lys	Pro	Leu	Asp	Arg	Glu	
				165					170					175		
Glu	Ile	Ala	Lys	Tyr	Glu	Leu	Phe	Gly	His	Ala	Val	Ser	Glu	Asn	Gly	
			180					185					190			
Ala	Ser	Val	Glu	Asp	Pro	Met	Asn	Ile	Ser	Ile	Ile	Val	Thr	Asp	Gln	
		195					200					205				
Asn	Asp	His	Lys	Pro	Lys	Phe	Thr	Gln	Asp	Thr	Phe	Arg	Gly	Ser	Val	
	210					215					220					
Leu	Glu	Gly	Val	Leu	Pro	Gly	Thr	Ser	Val	Met	Gln	Val	Thr	Ala	Thr	
225					230					235					240	
Asp	Glu	Asp	Asp	Ala	Ile	Tyr	Thr	Tyr	Asn	Gly	Val	Val	Ala	Tyr	Ser	
				245					250					255		
Ile	His	Ser	Gln	Glu	Pro	Lys	Asp	Pro	His	Asp	Leu	Met	Phe	Thr	Ile	
			260					265					270			
His	Arg	Ser	Thr	Gly	Thr	Ile	Ser	Val	Ile	Ser	Ser	Gly	Leu	Asp	Arg	
	275						280					285				
Glu	Lys	Val	Pro	Glu	Tyr	Thr	Leu	Thr	Ile	Gln	Ala	Thr	Asp	Met	Asp	
	290					295					300					
Gly	Asp	Gly	Ser	Thr	Thr	Thr	Ala	Val	Ala	Val	Val	Glu	Ile	Leu	Asp	
305					310					315					320	
Ala	Asn	Asp	Asn	Ala	Pro	Met	Phe	Asp	Pro	Gln	Lys	Tyr	Glu	Ala	His	
				325					330					335		
Val	Pro	Glu	Asn	Ala	Val	Gly	His	Glu	Val	Gln	Arg	Leu	Thr	Val	Thr	
			340					345					350			
Asp	Leu	Asp	Ala	Pro	Asn	Ser	Pro	Ala	Trp	Arg	Ala	Thr	Tyr	Leu	Ile	
	355						360					365				
Met	Gly	Gly	Asp	Asp	Gly	Asp	His	Phe	Thr	Ile	Thr	Thr	His	Pro	Glu	
	370				375						380					
Ser	Asn	Gln	Gly	Ile	Leu	Thr	Thr	Arg	Lys	Gly	Leu	Asp	Phe	Glu	Ala	
385					390					395					400	
Lys	Asn	Gln	His	Thr	Leu	Tyr	Val	Glu	Val	Thr	Asn	Glu	Ala	Pro	Phe	
			405					410						415		
Val	Leu	Lys	Leu	Pro	Thr	Ser	Thr	Ala	Thr	Ile	Val	Val	His	Val	Glu	
			420					425					430			
Asp	Val	Asn	Glu	Ala	Pro	Val	Phe	Val	Pro	Pro	Ser	Lys	Val	Val	Glu	
	435						440					445				
Val	Gln	Glu	Gly	Ile	Pro	Thr	Gly	Glu	Pro	Val	Cys	Val	Tyr	Thr	Ala	
	450					455					460					
Glu	Asp	Pro	Asp	Lys	Glu	Asn	Gln	Lys	Ile	Ser	Tyr	Arg	Ile	Leu	Arg	
465					470					475					480	
Asp	Pro	Ala	Gly	Trp	Leu	Ala	Met	Asp	Pro	Asp	Ser	Gly	Gln	Val	Thr	
			485					490						495		
Ala	Val	Gly	Thr	Leu	Asp	Arg	Glu	Asp	Glu	Gln	Phe	Val	Arg	Asn	Asn	
			500					505					510			
Ile	Tyr	Glu	Val	Met	Val	Leu	Ala	Met	Asp	Asn	Gly	Ser	Pro	Pro	Thr	
	515						520						525			
Thr	Gly	Thr	Gly	Thr	Leu	Leu	Thr	Leu	Ile	Asp	Val	Asn	Asp	His		
	530				535					540						
Gly	Pro	Val	Pro	Glu	Pro	Arg	Gln	Ile	Thr	Ile	Cys	Asn	Gln	Ser	Pro	
545					550					555					560	
Val	Arg	Gln	Val	Leu	Asn	Ile	Thr	Asp	Lys	Asp	Leu	Ser	Pro	His	Thr	
			565					570						575		
Ser	Pro	Phe	Gln	Ala	Gln	Leu	Thr	Asp	Asp	Ser	Asp	Ile	Tyr	Trp	Thr	
		580						585					590			
Ala	Glu	Val	Asn	Glu	Glu	Gly	Asp	Thr	Val	Val	Leu	Ser	Leu	Lys	Lys	
	595						600					605				
Phe	Leu	Lys	Gln	Asp	Thr	Tyr	Asp	Val	His	Leu	Ser	Leu	Ser	Asp	His	
	610					615					620					

Gly	Asn	Lys	Glu	Gln	Leu	Thr	Val	Ile	Arg	Ala	Thr	Val	Cys	Asp	Cys
625					630					635					640
His	Gly	His	Val	Glu	Thr	Cys	Pro	Gly	Pro	Trp	Lys	Gly	Gly	Phe	Ile
				645					650					655	
Leu	Pro	Val	Leu	Gly	Ala	Val	Leu	Ala	Leu	Leu	Phe	Leu	Leu	Leu	Val
			660					665					670		
Leu	Leu	Leu	Leu	Val	Arg	Lys	Lys	Arg	Lys	Ile	Lys	Glu	Pro	Leu	Leu
		675					680					685			
Leu	Pro	Glu	Asp	Asp	Thr	Arg	Asp	Asn	Val	Phe	Tyr	Tyr	Gly	Glu	Glu
	690					695					700				
Gly	Gly	Gly	Glu	Glu	Asp	Gln	Asp	Tyr	Asp	Ile	Thr	Gln	Leu	His	Arg
705					710					715					720
Gly	Leu	Glu	Ala	Arg	Pro	Glu	Val	Val	Leu	Arg	Asn	Asp	Val	Ala	Pro
				725					730					735	
Thr	Ile	Ile	Pro	Thr	Pro	Met	Tyr	Arg	Pro	Arg	Pro	Ala	Asn	Pro	Asp
			740					745					750		
Glu	Ile	Gly	Asn	Phe	Ile	Ile	Glu	Asn	Leu	Lys	Ala	Ala	Asn	Thr	Asp
		755					760					765			
Pro	Thr	Ala	Pro	Pro	Tyr	Asp	Thr	Leu	Leu	Val	Phe	Asp	Tyr	Glu	Gly
	770					775					780				
Ser	Gly	Ser	Asp	Ala	Ala	Ser	Leu	Ser	Ser	Leu	Thr	Ser	Ser	Ala	Ser
785					790					795					800
Asp	Gln	Asp	Gln	Asp	Tyr	Asp	Tyr	Leu	Asn	Glu	Trp	Gly	Ser	Arg	Phe
				805					810					815	
Lys	Lys	Leu	Ala	Asp	Met	Tyr	Gly	Gly	Gly	Glu	Asp	Asp			
			820					825							

<210> 17  
 <211> 694  
 <212> PRT  
 <213> Homo sapiens

<400> 17

Met	Lys	His	Leu	Lys	Arg	Trp	Trp	Ser	Ala	Gly	Gly	Gly	Leu	Leu	His
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Leu	Thr	Leu	Leu	Leu	Ser	Leu	Ala	Gly	Leu	Arg	Val	Asp	Leu	Asp	Leu
			20					25					30		
Tyr	Leu	Leu	Leu	Pro	Pro	Pro	Thr	Leu	Leu	Gln	Asp	Glu	Leu	Leu	Phe
		35					40					45			
Leu	Gly	Gly	Pro	Ala	Ser	Ser	Ala	Tyr	Ala	Leu	Ser	Pro	Phe	Ser	Ala
	50					55					60				
Ser	Gly	Gly	Trp	Gly	Arg	Ala	Gly	His	Leu	His	Pro	Lys	Gly	Arg	Glu
65					70				75						80
Leu	Asp	Pro	Ala	Ala	Pro	Pro	Glu	Gly	Gln	Leu	Leu	Arg	Glu	Val	Arg
				85					90					95	
Ala	Leu	Gly	Val	Pro	Phe	Val	Pro	Arg	Thr	Ser	Val	Asp	Ala	Trp	Leu
			100					105					110		
Val	His	Ser	Val	Ala	Ala	Gly	Ser	Ala	Asp	Glu	Ala	His	Gly	Leu	Leu
		115					120					125			
Gly	Ala	Ala	Ala	Ala	Ser	Ser	Thr	Gly	Gly	Ala	Gly	Ala	Ser	Val	Asp
	130					135					140				
Gly	Gly	Ser	Gln	Ala	Val	Gln	Gly	Gly	Gly	Gly	Asp	Pro	Arg	Ala	Ala
145					150					155					160
Arg	Ser	Gly	Pro	Leu	Asp	Ala	Gly	Glu	Glu	Lys	Ala	Pro	Ala	Glu	
				165					170					175	
Pro	Thr	Ala	Gln	Val	Pro	Asp	Ala	Gly	Gly	Cys	Ala	Ser	Glu	Glu	Asn
			180					185					190		

Gly	Val	Leu	Arg	Glu	Lys	His	Glu	Ala	Val	Asp	His	Ser	Ser	Gln	His
	195						200					205			
Glu	Glu	Asn	Glu	Glu	Arg	Val	Ser	Ala	Gln	Lys	Glu	Asn	Ser	Leu	Gln
	210					215					220				
Gln	Asn	Asp	Asp	Asp	Glu	Asn	Lys	Ile	Ala	Glu	Lys	Pro	Asp	Trp	Glu
225					230					235					240
Ala	Glu	Lys	Thr	Thr	Glu	Ser	Arg	Asn	Glu	Arg	His	Leu	Asn	Gly	Thr
			245						250					255	
Asp	Thr	Ser	Phe	Ser	Leu	Glu	Asp	Leu	Phe	Gln	Leu	Leu	Ser	Ser	Gln
		260					265						270		
Pro	Glu	Asn	Ser	Leu	Glu	Gly	Ile	Ser	Leu	Gly	Asp	Ile	Pro	Leu	Pro
	275					280						285			
Gly	Ser	Ile	Ser	Asp	Gly	Met	Asn	Ser	Ser	Ala	His	Tyr	His	Val	Asn
290						295					300				
Phe	Ser	Gln	Ala	Ile	Ser	Gln	Asp	Val	Asn	Leu	His	Glu	Ala	Ile	Leu
305					310					315					320
Leu	Cys	Pro	Asn	Asn	Thr	Phe	Arg	Arg	Asp	Pro	Thr	Ala	Arg	Thr	Ser
			325						330					335	
Gln	Ser	Gln	Glu	Pro	Phe	Leu	Gln	Leu	Asn	Ser	His	Thr	Thr	Asn	Pro
		340						345					350		
Glu	Gln	Thr	Leu	Pro	Gly	Thr	Asn	Leu	Thr	Gly	Phe	Leu	Ser	Pro	Val
	355						360					365			
Asp	Asn	His	Met	Arg	Asn	Leu	Thr	Ser	Gln	Asp	Leu	Leu	Tyr	Asp	Leu
	370					375					380				
Asp	Ile	Asn	Ile	Phe	Asp	Glu	Ile	Asn	Leu	Met	Ser	Leu	Ala	Thr	Glu
385					390					395					400
Asp	Asn	Phe	Asp	Pro	Ile	Asp	Val	Ser	Gln	Leu	Phe	Asp	Glu	Pro	Asp
			405						410					415	
Ser	Asp	Ser	Gly	Leu	Ser	Leu	Asp	Ser	Ser	His	Asn	Asn	Thr	Ser	Val
			420					425					430		
Ile	Lys	Ser	Asn	Ser	Ser	His	Ser	Val	Cys	Asp	Glu	Gly	Ala	Ile	Gly
	435						440					445			
Tyr	Cys	Thr	Asp	His	Glu	Ser	Ser	Ser	His	His	Asp	Leu	Glu	Gly	Ala
	450					455					460				
Val	Gly	Gly	Tyr	Tyr	Pro	Glu	Pro	Ser	Lys	Leu	Cys	His	Leu	Asp	Gln
465					470					475					480
Ser	Asp	Ser	Asp	Phe	His	Gly	Asp	Leu	Thr	Phe	Gln	His	Val	Phe	His
				485					490					495	
Asn	His	Thr	Tyr	His	Leu	Gln	Pro	Thr	Ala	Pro	Glu	Ser	Thr	Ser	Glu
		500						505					510		
Pro	Phe	Pro	Trp	Pro	Gly	Lys	Ser	Gln	Lys	Ile	Arg	Ser	Arg	Tyr	Leu
	515						520					525			
Glu	Asp	Thr	Asp	Arg	Asn	Leu	Ser	Arg	Asp	Glu	Gln	Arg	Ala	Lys	Ala
	530					535					540				
Leu	His	Ile	Pro	Phe	Ser	Val	Asp	Glu	Ile	Val	Gly	Met	Pro	Val	Asp
545					550					555					560
Ser	Phe	Asn	Ser	Met	Leu	Ser	Arg	Tyr	Tyr	Leu	Thr	Asp	Leu	Gln	Val
				565					570					575	
Ser	Leu	Ile	Arg	Asp	Ile	Arg	Arg	Arg	Gly	Lys	Asn	Lys	Val	Ala	Ala
		580						585					590		
Gln	Asn	Cys	Arg	Lys	Arg	Lys	Leu	Asp	Ile	Ile	Leu	Asn	Leu	Glu	Asp
	595						600					605			
Asp	Val	Cys	Asn	Leu	Gln	Ala	Lys	Lys	Glu	Thr	Leu	Lys	Arg	Glu	Gln
	610					615					620				
Ala	Gln	Cys	Asn	Lys	Ala	Ile	Asn	Ile	Met	Lys	Gln	Lys	Leu	His	Asp
625					630					635					640
Leu	Tyr	His	Asp	Ile	Phe	Ser	Arg	Leu	Arg	Asp	Asp	Gln	Gly	Arg	Pro
				645					650					655	



Val Asn Pro Asn His Tyr Ala Leu Gln Cys Thr His Asp Gly Ser Ile  
                   660                  665                  670  
 Leu Ile Val Pro Lys Glu Leu Val Ala Ser Gly His Lys Lys Glu Thr  
                   675                  680                  685  
 Gln Lys Gly Lys Arg Lys  
                   690

<210> 18  
 <211> 402  
 <212> PRT  
 <213> Homo sapiens

<400> 18  
 Met Lys Leu Glu Val Phe Val Pro Arg Ala Ala His Gly Asp Lys Gln  
   1                  5                  10                  15  
 Gly Ser Asp Leu Glu Gly Ala Gly Gly Ser Asp Ala Pro Ser Pro Leu  
                   20                  25                  30  
 Ser Ala Ala Gly Asp Asp Ser Leu Gly Ser Asp Gly Asp Cys Ala Ala  
                   35                  40                  45  
 Lys Pro Ser Ala Gly Gly Gly Ala Arg Asp Thr Gln Gly Asp Gly Glu  
                   50                  55                  60  
 Gln Ser Ala Gly Gly Gly Pro Gly Ala Glu Glu Ala Ile Pro Ala Ala  
  65                  70                  75                  80  
 Ala Ala Ala Ala Val Val Ala Glu Gly Ala Glu Ala Gly Ala Ala Gly  
                   85                  90                  95  
 Pro Gly Ala Gly Gly Ala Gly Ser Gly Glu Gly Ala Arg Ser Lys Pro  
                   100                  105                  110  
 Tyr Thr Arg Arg Pro Lys Pro Pro Tyr Ser Tyr Ile Ala Leu Ile Ala  
                   115                  120                  125  
 Met Ala Ile Arg Asp Ser Ala Gly Gly Arg Leu Thr Leu Ala Glu Ile  
                   130                  135                  140  
 Asn Glu Tyr Leu Met Gly Lys Phe Pro Phe Phe Arg Gly Ser Tyr Thr  
  145                  150                  155                  160  
 Gly Trp Arg Asn Ser Val Arg His Asn Leu Ser Leu Asn Asp Cys Phe  
                   165                  170                  175  
 Val Lys Val Leu Arg Asp Pro Ser Arg Pro Trp Gly Lys Asp Asn Tyr  
                   180                  185                  190  
 Trp Met Leu Asn Pro Asn Ser Glu Tyr Thr Phe Ala Asp Gly Val Phe  
                   195                  200                  205  
 Arg Arg Arg Arg Lys Arg Leu Ser His Arg Ala Pro Val Pro Ala Pro  
                   210                  215                  220  
 Gly Leu Arg Pro Glu Glu Ala Pro Gly Leu Pro Ala Ala Pro Pro Pro  
  225                  230                  235                  240  
 Ala Pro Ala Ala Pro Ala Ser Pro Arg Met Arg Ser Pro Ala Arg Gln  
                   245                  250                  255  
 Glu Glu Arg Ala Ser Pro Ala Gly Lys Phe Ser Ser Ser Phe Ala Ile  
                   260                  265                  270  
 Asp Ser Ile Leu Arg Lys Pro Phe Arg Ser Arg Arg Leu Arg Asp Thr  
                   275                  280                  285  
 Ala Pro Gly Thr Thr Leu Gln Trp Gly Ala Ala Pro Cys Pro Pro Leu  
                   290                  295                  300  
 Pro Ala Phe Pro Ala Leu Leu Pro Ala Ala Pro Cys Arg Ala Leu Leu  
  305                  310                  315                  320  
 Pro Leu Cys Ala Tyr Gly Ala Gly Glu Pro Ala Arg Leu Gly Ala Arg  
                   325                  330                  335  
 Glu Ala Glu Val Pro Pro Thr Ala Pro Pro Leu Leu Leu Ala Pro Leu  
                   340                  345                  350

Pro Ala Ala Ala Pro Ala Lys Pro Leu Arg Gly Pro Ala Ala Gly Gly  
                   355                  360                  365  
 Ala His Leu Tyr Cys Pro Leu Arg Leu Pro Ala Ala Leu Gln Ala Ala  
           370                  375                  380  
 Leu Val Arg Arg Pro Gly Pro His Leu Ser Tyr Pro Val Glu Thr Leu  
 385                  390                  395                  400  
 Leu Ala

<210> 19  
 <211> 209  
 <212> PRT  
 <213> Homo sapiens

<400> 19  
 Met Glu Lys His His Val Pro Ser Asp Phe Asn Val Asn Val Lys Val  
   1                  5                  10                  15  
 Asp Thr Gly Pro Arg Glu Asp Leu Ile Lys Val Leu Glu Asp Met Arg  
           20                  25                  30  
 Gln Glu Tyr Glu Leu Ile Ile Lys Lys His Arg Asp Leu Asp Thr  
           35                  40                  45  
 Trp Tyr Lys Glu Gln Ser Ala Ala Met Ser Gln Glu Ala Ala Ser Pro  
   50                  55                  60  
 Ala Thr Val Gln Ser Arg Gln Gly Asp Ile His Glu Leu Lys Arg Thr  
 65                  70                  75                  80  
 Phe Gln Ala Leu Glu Ile Asp Leu Gln Ala Gln Tyr Ser Thr Lys Ser  
           85                  90                  95  
 Ala Leu Glu Asn Met Leu Ser Glu Thr Gln Ser Arg Tyr Ser Cys Lys  
           100                  105                  110  
 Leu Gln Asp Met Gln Glu Ile Ile Ser His Tyr Glu Glu Glu Leu Thr  
           115                  120                  125  
 Gln Leu Arg His Glu Leu Glu Arg Gln Asn Asn Glu Tyr Gln Val Leu  
           130                  135                  140  
 Leu Gly Ile Lys Thr His Leu Glu Lys Glu Ile Thr Thr Tyr Arg Arg  
 145                  150                  155                  160  
 Leu Leu Glu Gly Glu Ser Glu Gly Thr Arg Glu Glu Ser Lys Ser Ser  
           165                  170                  175  
 Met Lys Val Ser Ala Thr Pro Lys Ile Lys Ala Ile Thr Gln Glu Thr  
           180                  185                  190  
 Ile Asn Gly Arg Leu Val Leu Cys Gln Val Asn Glu Ile Gln Lys His  
           195                  200                  205  
 Ala

<210> 20  
 <211> 278  
 <212> PRT  
 <213> Homo sapiens

<400> 20  
 Met Asp Lys Ser Gly Ile Asp Ser Leu Asp His Val Thr Ser Asp Ala  
   1                  5                  10                  15  
 Val Glu Leu Ala Asn Arg Ser Asp Asn Ser Ser Asp Ser Ser Leu Phe  
           20                  25                  30  
 Lys Thr Gln Cys Ile Pro Tyr Ser Pro Lys Gly Glu Lys Arg Asn Pro  
           35                  40                  45

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Ile Arg Lys Phe Val Arg Thr Pro Glu Ser Val His Ala Ser Asp Ser
 50      55      60
Ser Ser Asp Ser Ser Phe Glu Pro Ile Pro Leu Thr Ile Lys Ala Ile
65      70      75      80
Phe Glu Arg Phe Lys Asn Arg Lys Lys Arg Tyr Lys Lys Lys Lys Lys
      85      90      95
Arg Arg Tyr Gln Pro Thr Gly Arg Pro Arg Gly Arg Pro Glu Gly Arg
      100      105      110
Arg Asn Pro Ile Tyr Ser Leu Ile Asp Lys Lys Lys Gln Phe Arg Ser
      115      120      125
Arg Gly Ser Gly Phe Pro Phe Leu Glu Ser Glu Asn Glu Lys Asn Ala
      130      135      140
Pro Trp Arg Lys Ile Leu Thr Phe Glu Gln Ala Val Ala Arg Gly Phe
145      150      155      160
Phe Asn Tyr Ile Glu Lys Leu Lys Tyr Glu His His Leu Lys Glu Ser
      165      170      175
Leu Lys Gln Met Asn Val Gly Glu Asp Leu Glu Asn Glu Asp Phe Asp
      180      185      190
Ser Arg Arg Tyr Lys Phe Leu Asp Asp Asp Gly Ser Ile Ser Pro Ile
      195      200      205
Glu Glu Ser Thr Ala Glu Asp Glu Asp Ala Thr His Leu Glu Asp Asn
      210      215      220
Glu Cys Asp Ile Lys Leu Ala Gly Asp Ser Phe Ile Val Ser Ser Glu
225      230      235      240
Phe Pro Val Arg Leu Ser Val Tyr Leu Glu Glu Glu Asp Ile Thr Glu
      245      250      255
Glu Ala Ala Leu Ser Lys Lys Arg Ala Thr Lys Ala Lys Asn Thr Gly
      260      265      270
Gln Arg Gly Leu Lys Met
      275

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<210> 21
<211> 488
<212> PRT
<213> Homo sapiens

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<400> 21
Ala Val Leu Ala Ala His Cys Pro Phe Tyr Ser Trp Lys Arg Val Phe
 1      5      10      15
Leu Thr His Pro Ala Thr Cys Tyr Arg Thr Thr Cys Pro Gly Pro Cys
      20      25      30
Asp Ser Gln Pro Cys Gln Asn Gly Gly Thr Cys Val Pro Glu Gly Leu
      35      40      45
Asp Gly Tyr Gln Cys Leu Cys Pro Leu Ala Phe Gly Gly Glu Ala Asn
      50      55      60
Cys Ala Leu Lys Leu Ser Leu Glu Cys Arg Val Asp Leu Leu Phe Leu
65      70      75      80
Leu Asp Ser Ser Ala Gly Thr Thr Leu Asp Gly Phe Leu Arg Ala Lys
      85      90      95
Val Phe Val Lys Arg Phe Val Arg Ala Val Leu Ser Glu Asp Ser Arg
      100      105      110
Ala Arg Val Gly Val Ala Thr Tyr Ser Arg Glu Leu Leu Val Ala Val
      115      120      125
Pro Val Gly Glu Tyr Gln Asp Val Pro Asp Leu Val Trp Ser Leu Asp
      130      135      140
Gly Ile Pro Phe Arg Gly Gly Pro Thr Leu Thr Gly Ser Ala Leu Arg
145      150      155      160

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Gln Ala Ala Glu Arg Gly Phe Gly Ser Ala Thr Arg Thr Gly Gln Asp  
 165 170 175  
 Arg Pro Arg Arg Val Val Val Leu Leu Thr Glu Ser His Ser Glu Asp  
 180 185 190  
 Glu Val Ala Gly Pro Ala Arg His Ala Arg Ala Arg Glu Leu Leu Leu  
 195 200 205  
 Leu Gly Val Gly Ser Glu Ala Val Arg Ala Glu Leu Glu Glu Ile Thr  
 210 215 220  
 Gly Ser Pro Lys His Val Met Val Tyr Ser Asp Pro Gln Asp Leu Phe  
 225 230 235 240  
 Asn Gln Ile Pro Glu Leu Gln Gly Lys Leu Cys Ser Arg Gln Arg Pro  
 245 250 255  
 Gly Cys Arg Thr Gln Ala Leu Asp Leu Val Phe Met Leu Asp Thr Ser  
 260 265 270  
 Ala Ser Val Gly Pro Glu Asn Phe Ala Gln Met Gln Ser Phe Val Arg  
 275 280 285  
 Ser Cys Ala Leu Gln Phe Glu Val Asn Pro Asp Val Thr Gln Val Gly  
 290 295 300  
 Leu Val Val Tyr Gly Ser Gln Val Gln Thr Ala Phe Gly Leu Asp Thr  
 305 310 315 320  
 Lys Pro Thr Arg Ala Ala Met Leu Arg Ala Ile Ser Gln Ala Pro Tyr  
 325 330 335  
 Leu Gly Gly Val Gly Ser Ala Gly Thr Ala Leu Leu His Ile Tyr Asp  
 340 345 350  
 Lys Val Met Thr Val Gln Arg Gly Ala Arg Pro Gly Val Pro Lys Ala  
 355 360 365  
 Val Val Val Leu Thr Gly Gly Arg Gly Ala Glu Asp Ala Ala Val Pro  
 370 375 380  
 Ala Gln Lys Leu Arg Asn Asn Gly Ile Ser Val Leu Val Val Gly Val  
 385 390 395 400  
 Gly Pro Val Leu Ser Glu Gly Leu Arg Arg Leu Ala Gly Pro Arg Asp  
 405 410 415  
 Ser Leu Ile His Val Ala Ala Tyr Ala Asp Leu Arg Tyr His Gln Asp  
 420 425 430  
 Val Leu Ile Glu Trp Leu Cys Gly Glu Ala Lys Gln Pro Val Asn Leu  
 435 440 445  
 Cys Lys Pro Ser Pro Cys Met Asn Glu Gly Ser Cys Val Leu Gln Asn  
 450 455 460  
 Gly Ser Tyr Arg Cys Lys Cys Arg Asp Gly Trp Glu Gly Pro His Cys  
 465 470 475 480  
 Glu Asn Arg Phe Leu Arg Arg Pro  
 485

&lt;210&gt; 22

&lt;211&gt; 13

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 22

Ala Val Leu Ala Ala His Cys Pro Phe Tyr Ser Trp Lys  
 1 5 10